TEXTILE TECHNOLOGY DIGEST

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ABSTRACTS

FIBERS A

Experimental study of the viscoelastic properties of textile fibers: dynamic measurements from subsonic to supersonic frequencies.

K. Fujino, H. Kawai and T. Horino (Kyoto University). *Textile Research J. 25:* 722-737 (August, 1955).

The viscoelastic properties of some commercial textile fibers were measured by means of several longitudinal-vibration methods over a range of frequency from 2 x 10^{-1} to 2 x 10^{5} cps at 20°C, 65% R. H., under a static tension of 0.4 g/den and a dynamic strain of less than 0.1%. 49 references.

Stress relaxation of fibers as a means of interpreting physical and chemical structure.

T. Lemiszka. Textile Research Institute, Princeton, N. J. July, 1954. 233 p. Available from Office of Technical Services, Washington 25, D. C. $6.00. PB 111 655.

Stress-relaxation behavior of nylon, Dynel, Dacron, textile rayon, and ramie in distilled water, hydrochloric acid, and in some instances, a few other reagents including sodium hydroxide, sodium fluoride, and lithium chloride. Various methods are considered for interpretation of data. The experimental data agree with the assumption that cellulose contains a distribution of ordered material ranging between the crystalline and amorphous states. Other interpretations follow.

NATURAL FIBERS A 1

The relationship of aqueous-extract pH to grade in raw cotton of the U. S. crop of 1954.

P. B. Marsh (U. S. Agricultural Research Service). *(Letter to the editor). Textile Research J. 25:* 739-742 (August, 1955).

Digestibility of chemically-modified wools in papain-bisulfite urea.

F. G. Lennox (Wool Textile Research Laboratory, Melbourne, Australia). *Textile Research J. 25:* 676-682 (August, 1955).

This paper describes a method of evaluating the effect of various chemical treatments on wool by the application of papain-bisulfite-urea solution, the three components of which are considered to split peptide bonds, disulfide bonds, and hydrogen bonds, respectively. The rapid method of measuring enzyme resistance used in these studies may be generally suitable for detecting wool damage and for selecting chemical methods of modifying wool for assessment by moth-resistance and soil-burial methods. 28 references.

Resilience of scoured wool.

A. Demiruren and R. H. Burns (University of Wyoming). *Textile Research J. 25:* 665-675 (August, 1955).

The relationship of 6 fiber properties to compressional-bulk resilience of wool was determined. As a preliminary study, the relationship of these fiber properties to maximum load or stiffness was also determined. Twelve properties of the wool samples were evaluated, and 6 of these were eliminated by statistics and logical reasoning because they were either measurements of the same character, such as crimp, or were clearly unrelated to the main criterion, as was the case with residuals. A method of measuring the compressional-bulk resilience and maximum load developed by J. H. Dusenbury and P. C. deMcCarty at the Textile Research Institute was used to obtain the data on these properties used in this paper. The 29 wool samples used in this study represented the fine, medium, and long wool types. 38 references.

The yellowing of silk. Part 1. Its causes.

C. J. H. Pinte, Y. Teyssier and P. Rochas. *Bull. Inst. Textile France No. 51:* 7-16 (February, 1955); *in French.* Summary *in BCIRA 35:* 500 (1955).

MAN-MADE FIBERS A 2

1955 Synthetic-fiber table.

Textile World 105: 83-102 (September, 1955).

This revision of Textile World's 1953 Synthetic-fiber table includes information on three

new fibers: Fortisan-36, Arnel, and Type 6 nylon; three experimental fibers: Creslan, Teflon, and B. F. Goodrich's unnamed dinitrile fiber. Several fiber improvements and modifications are described. Reprints of this chart are available from Textile World, 330 West 42 Street, New York 36, New York. 1-15 copies are $1.00 each; 16-30 copies, 75 cents each; over 30 copies, 60 cents each.

Industrial uses of artificial fibers. Part 2.

R. W. Moncrieff. *Fibres 16*: 261-266 (August, 1955).

The author discusses the properties of durability, resistance to water and chemicals, biological resistance, and smoothness of surface, which have made man-made fibers acceptable in industry.

Arnel (formerly X-100), Courpleta, Trilan, Tricel.

SVF Fachorgan Textilveredlung 10, No. 5: 265-267 (1955); *in German.* Through *BCIRA 35:* 519 (1955).

The mechanical, physicochemical, and processing properties and uses of cellulose triacetate are listed. It is marketed as Arnel (staple fiber) by the Celanese Corporation of America, Courpleta (filament and staple) by Courtaulds Ltd, Trilan by the Celanese Corporation of Canada, and Tricel by the British Celanese Ltd.

YARN PRODUCTION B

OPENING, PICKING, FIBER PREPARATION B 1

The irregularities of card slivers in dependence of that of the picker lap.

W. Wegener and H. E. Braune. *Textil-Rundschau 10, No. 5:* 219-266 (1955); *in German.* Through *BCIRA 35:* 522 (1955).

The irregularities of the picker lap and card sliver were tested by means of the Ingolstadt lap tester and the Uster tester, respectively, and the correlation coefficients determined for the corresponding lap and card-sliver diagrams. In order to show how the correlation coefficient r is determined from the formulae given, the calculation is carried out both with single values and by classification of the values. The origin of picker-lap irregularities is discussed; they are attributed mainly to irregular feeding and inadequate cone adjustment on the picker.

CARDING AND COMBING B 2

The thickness variation in slivers caused by carding.

K. Hayakawa, I. Ishikawa and Y. Ogawa. *J. Soc. Textile Cellulose Ind. Japan 11, No. 2:* 78-82 (1955); *in Japanese with English summary.* Through *BCIRA 35:* 522 (1955).

Experiments carried out on cotton cards showed that carding engines, adequately adjusted, cause no variation in the thickness of the slivers produced; the thickness variation in the lap fed appears in the sliver after a certain time (35 seconds), required for the ingoing fibers to pass through the carding engine.

DRAWING AND ROVING B 3

Preparatory spinning machines (roving). Practical hints on the detection and elimination of fault sources.

A. Friedrich. *Melliand Textilber. 36, No. 5:* 432-436 (1955); *in German.* Through *BCIRA 35:* 523 (1955).

The normal adjustments of the cylinders and distances between them are given for three-cylinder speed frames (for various cotton qualities) and reference is also made to measures for preventing uneven rovings, the reversing mechanism, faulty bobbin shapes, and cone belts. Examples are given for the calculation of spindle and cylinder revolutions, individual drafts, count, twist, twist constant, etc.

25 years with super-draft two-apron drafting.

Whitin Rev. 22: 2-13 (July-August, 1955).

The highlights of 25 years of development of the Whitin Super-draft two-apron system are presented.

SPINNING, WINDING, TWISTING B 4

A direct drive spinning spindle.

Hispano-Suiza (Switzerland) Ltd. *Textile Wkly. 56:* 355-356 (July 29, 1955).

The Hispano-Suiza direct drive spindle is described and illustrated.

End breakages in worsted spinning. Part 5.

P. P. Townend and L. T. Yu. *Textile Recorder 73:* 57-58 (August, 1955).

The authors consider the effect of the varying amounts of twist inserted in the yarn and explain how the minimum twist for optimum spinning performance may be calculated. 4 references.

Work study in ring spinning.

Textile Merc. 132: 15, 17-18 (Jan. 7, 1955); 70-71, 73-74 (Jan. 14, 1955); 107-109 (Jan. 21, 1955). Through *BCIRA 35:* 240 (1955).

This three-part article discusses at some length the steps involved in the planning and operation of a work study scheme in a ring spinning mill, including the determination of work loads and the establishment of production standards and an incentive wages scheme.

Woolen spinning. Part 2. Some aspects of production control.

B. Jowett. *Wool Rev. 27:* 31, 33 (August, 1955).

Detailed time study using the Centralograph to determine efficiency in mule spinning is described.

Quilling.

Whitin Rev. 22: 14-23 (July-August, 1955).

The Whitin quiller is described. Illustrations are from quiller installations at Coats and Clark, Inc., Toccoa, Georgia.

New improved clutch for filling spindles.

Whitin Rev. 22: 24-26 (July-August, 1955).

The Grieb clutch is described and illustrated.

The mill of today. Part 42. Section 3. Yarn carriers—Paper or wood?

R. Z. Walker. *Textile Bull. 81:* 65-68 (August, 1955).

YARNS B 5

Crepe, crimp and crinkled yarns.

F. H. Clayton. *J. Textile Inst. 46:* P398-P404 (July, 1955).

Ornamentation of textile fabrics through yarn effects from crepe, crimp and crinkled yarns.

An experimental study of the factors involved in the manufacture of paper yarn.

G. Broughton and J. P. Wang. *Tappi 38, No. 4:* 237-241 (1955). Through *BCIRA 35:* 524 (1955).

A study has been made of factors such as twist, traveler weight, feed roller design, moisture pick-up, surface active agents, etc., involved in the manufacture of paper yarn on a modified wet doubling machine. Breaking strength of the paper yarn was related linearly to the moisture pick-up at any given twist per inch, independent of the surface-active agent used.

The influence of twist on textile yarns. Part 6.

A. Webster. *Textile Mfr. 81:* 399-404 (August, 1955).

Unwinding faults in low twist filament rayon yarns. Pirning, warping, weaving, sloughing-off, sloughing and snarling on ring cops, unwinding faults in low-twist yarns for knitting, and counting twists per inch in yarns are described.

Modified filament yarns: bulk and stretch in new forms. Part 1.

Man-Made Textiles 32: 52-54 (August, 1955).

Introducing a series of articles reviewing principles, possibilities and machinery developments.

Production of cotton sewing yarn.

W. Engelhaupt. *Textil- u. Faserstofftech. 5, No. 4:* 230-232 (1955); *in German.* Through *BCIRA 35:* 523 (1955).

The main problems in the production of sewing thread are discussed with reference to the relationship between ticket number and metric count, choice of yarn, piecing and knotting, cleaning, twist, finish, and causes of defects.

Simplified process for cabled yarns.

G. Quintelier and M. Warzee. *Textile Wkly.* 56: 548-549 (August 19, 1955).

The authors describe a new system of cabling which produces in a single operation a cord of two strands. This method of cabling results not only in an improvement of the mechanical characteristics of the cord but also increases its endurance to fatigue. Diagrams.

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FABRIC PRODUCTION C

WARPING, SLASHING, YARN PREPARATION C 1

Experiences of operating modern preparation machinery.

A. Ormerod. *Textile Wkly. 55:* 1615-1620 (May 27, 1955); 1698-1701 (June 3, 1955); 1790-1794, 1810 (June 10, 1955). Through *BCIRA 35:* 524 (1955).

The author discusses in detail some of the experiences of a British mill in re-equipping its weaving preparation section. Under each of three headings, gray-warp preparation, colored warp preparation, and gray and colored weft preparation, he considers the limitations of current practice, reasons for the selection of particular equipment, and practical and organizational difficulties which had to be overcome before a satisfactory installation was achieved.

New heavy duty beaming machine.

Thomas Holt Ltd. *Textile Wkly. 56:* 431-432, 442 (August 5, 1955).

The No. 8 heavy duty beaming machine is described and illustrated.

Contribution to the systematic study of sizing. Reagent and staining technique of non-starchy sizes.

R. Schutz and S. Marguier. *Bull. Inst. Textile France No. 51:* 18-22 (February, 1955); *in French.* Through *BCIRA 35:* 486 (1955).

The technique described makes it possible to identify deposits of carboxymethylcellulose, alginate, cellulose ether, polyvinyl alcohol or methacrylate on cotton, viscose rayon and wool fibers sized with these products. The reagent consists of 2.5 g Artisile Violet BP and 0.5 g Paris Violet Base, dispersed in 50 c.c. methanol. The yarns are first dipped into hydrochloric acid solution (1 c.c. concentrated HCl in 50 c.c. methanol) and rinsed in methanol before and after dyeing. They are then cut with a microtome and examined under the microscope, in which the sizing agent appears black.

Properties of alginates.

R. H. McDowell. Alginate Industries Ltd, London, 1955. 47 p. Through *BCIRA 35:* 524 (1955).

The textile uses of alginates in warp sizes, printing pastes, and as a temporary yarn are referred to, but general principles, rather than details of use, are emphasized.

Sizes for textiles. Part 1. Effects of some phosphates on starch size.

F. Bekku. *J. Soc. Textile Cellulose Ind. Japan 11, No. 3:* 148-154 (1955); *in Japanese with English summary.* Through *BCIRA 35:* 524 (1955).

Sizing warps containing Ardil.

Imperial Chemical Industries. *Textile Wkly. 56:* 547, 549 (August 19, 1955).

Suitable mixings for yarn blends of Ardil/cellulose.

Work study in warping.

Textile Merc. 132: 809-810, 812 (May 13, 1955). Through *BCIRA 35:* 486 (1955).

The relative merits of ordinary slow-speed and modern high-speed warping machines are outlined. It is pointed out that the productivity of slow-speed beam warpers can be considerably improved by suitable modifications. The application of work study to the warping process is explained.

WEAVING C 2

Attachment raises Lancashire loom production 250%.

C. S. Aspden. *Skinner's Silk and Rayon Record 29:* 838-842 (August, 1955).

A new continuous weft supply method (W. & A. Riley Ltd., Holker Mill, Colne) is described and its use illustrated with photographs.

Some effects of shed timing and setting on weaving.

F. Bramma. *J. Textile Inst. 46:* P405-P412 (July, 1955).

Experiments to find the influence of shed timing on the wefting capacity of the loom are described.

Modern four-color weft supply motions.

Reyon, Zellwolle u. Chemiefasern No. 2: 88-85 (February, 1955); *No. 4:* 231-237 (April, 1955); *in German.* Through *BCIRA 35:* 525 (1955).

The construction and mechanism of automatic four-color weft-supply motions are described, with special reference to the Ruti loom with vertical shaft magazine and the Saurer weft-supply motion with round magazine.

Reduction of the number of warp yarn breakages by correct adjustment of the shed.

H. Hollstein. *Textil- u. Faserstofftech. 5, No. 4:* 253-255 (1955); *in German.* Through *BCIRA 35:* 525 (1955).

A study in loom fixing. Part 2.

F. D. Herring. *Textile Bull. 81:* 73-74 (August, 1955).

The causes and remedies of filling breakage.

Theory of cover. Part 2.

H. C. Spencer. *Textile Mfr. 81:* 412-413 (August, 1955).

Diameters per inch, cover factor, degree of compression, high cover factor in one direction, and effect of weave.

Tufted carpet manufacturing.

A. Crossland. *Textile Recorder 73:* 52-56 (August, 1955).

Large scale projects for the manufacturing of tufted carpets are at present being undertaken in Great Britain. This article gives an account of the manufacturing processes and a description of the machinery now available.

Warp tension and cloth control. Part 4.

J. Starkie. *Textile Mfr. 81:* 426-428 (August, 1955).

Irregular pick spacing, continuous take-up motions, motions without change wheels, direct motions, and negative take-up motions.

Weaving defects. Part 5. Bad cover or face (wavy or slack weave) especially on drill, twill, and sateen.

C. O. Cronic. *Textile Ind. 119:* 134-135 (September, 1955).

KNITTING C 3

Electric drives in hosiery industry.

H. E. Newton and L. Williams. *Textile Wkly. 56:* 408-414 (August 5, 1955); *Textile Mfr. 81:* 406-409 (August, 1955).

FABRICS C 4

Damask.

Ciba Rev. No. 110: 3966-3994 (June, 1955).

The technique of damask weaving, by T. Schreus, p. 3966-3973; *Silk damasks,* p. 3975-3982; and *Linen damasks,* by M. Braun-Ronsdorf, p. 3985-3994. 28 references.

Design in woven structure. Part 32. Figured design by adding and deleting marks.

D. C. Snowden. *Wool Rev. 27:* 29, 31 (August, 1955).

The obtaining of figured designs by deleting marks from a plain weave so that weft floats are distributed in twill, herringbone and other orders is a simple and natural variation of the method of figuring discussed in the previous paper of this series.

Dimensional variations in knitted goods. Part 1.

W. A. Dutton. *Textile Wkly. 56:* 506-507 (August 12, 1955).

The importance of dimensional variations.

Dimensional variations in knitted goods. Part 2.

W. A. Dutton (Hosiery and Allied Trade Research Assoc.). *Textile Wkly. 56:* 578-581, 583 (August 19, 1955).

Analyzing variations, causes of variations, and controlling variations.

Properties of warp-knitted fabrics. Part 1. The effect, on the warp-knitted fabrics, of expanding deformation.

K. Hosoda, M. Okamoto and F. Umano. *J. Soc. Textile Cellulose Ind. Japan 11, No. 3:* 128-134 (1955); *in Japanese with English summary.* Through *BCIRA 35:* 540 (1955).

Warp-knitted fabrics of different construction and different tension of the warp yarns were tested by the stretching method to determine percentage elongation and stresses. Results show that the properties of the fabrics depend on the properties of the loop rather than on their construction and the tension of the warp threads.

Sewing damage on fabrics.

C. H. Vetter. *Reyon, Zellwolle u. Chemiefasern No. 4:* 245-247 (April, 1955); *in German.* Through *BCIRA 35:* 525 (1955).

In collaboration with a large shirt factory, the author carried out a series of experiments to show the effect of different needles, sewing machines, stitch densities, sewing velocities, and sewing yarns on the fabrics made from man-made fibers. Results showed that, for the durability of seams and prevention of damages to the fabric during the sewing process, the choice of a suitable needle is of paramount importance. Photographs of seams and of the needles used are given.

Synthetic furs.

Fibres 16: 277-279 (August, 1955).

The story of the development of the man-made furs industry.

FINISHING AND CHEMICAL PROCESSING D

Ultrasonics in emulsification.

Ultrasonics, Ltd. *Dyer 114:* 219, 221 (August 5, 1955).

The new Minisonic self-contained homogenizer for laboratory and small batch production uses the Rapisonic principle of emulsification and homogenization by ultrasonic cavitation, and has been designed as the result of industrial experience with the production model during the past three years. It is said to make possible the transfer of a product from the laboratory stage straight into full-scale production without altering the manufacturing technique, because a similar vibrating element is used; it also offers the opportunity of making emulsions by ultrasonic means to those who use only small batches. Diagrams.

CHEMICAL PROCESSES D 1

The bleaching of synthetic fibers with sodium chlorite.

M. Bryner. *SVF Fachorgan Textilveredlung 10, No. 4:* 183-188 (1955); *in German.* Through *BCIRA 35:* 526 (1955).

The advantages of sodium chlorite bleaching of synthetic fibers are pointed out. The most suitable material for the bleaching equipment is stoneware. The pH value of the bleaching bath must be measured potentiometrically, since the usual indicator papers fail to work under the conditions of chlorite bleaching. Directions are given for bleaching polyamide, polyacrylonitrile, polyester, polyvinyl chloride, and vinyl chloride/acrylonitrile (Dynel) fibers.

The optical brightening of textiles.

R. Berthoud. *SVF Fachorgan Textilveredlung 10, No. 4:* 188-195 (1955); *in German.* Through *BCIRA 35:* 527 (1955).

The mechanism of optical bleaching is discussed and the necessity of using optical brightening agent only on at least pre-bleached fabric is pointed out. Optical bleaches of the Uvitex type (Ciba) are recommended and directions are given for their use on natural (cotton, hemp, linen, jute, coir, wool, silk) and artificial (viscose, acetate rayon, polyamide, polyester, polyacrylonitrile) fibers.

Effect of chlorine-liberating detergents on crease-resistant fabrics.

W. Graeser. *Melliand Textilber. 36, No. 5:* 459-462 (1955); *in German.* Summary in *BCIRA 35:* 533 (1955).

The application of wrinkle-resistant finishes to cotton.

H. C. Borghetty (Rohm and Haas Co.). *Am. Dyestuff Reptr. 44:* P557-P560 (August 15, 1955).

The practical aspects of crease-resistant finishes on cotton fabrics are discussed. Specific recommendations are given on the amount and types of resins for optimum results on fabrics and emphasize the necessity of employing builders and softeners to obtain the necessary variations in hand normally expected from cotton fabrics. Curing conditions and their effect on the stabilization of the fabric, as well as on the physical properties, are also discussed. The laboratory control of plant operations is outlined, and the limits of crease recovery are defined.

Recent developments in cotton finishing.

G. M. Gantz (General Aniline and Film Corp.). *Am. Dyestuff Reptr. 44:* P550-P556 (August 15, 1955).

This paper reviews various finishing treatments of broad-woven cotton fabrics with emphasis on recent developments in the field. Wet-processing operations in bleaching, dyeing, or printing are considered in so far as they affect subsequent finishing treatments. One type of finish is designed to modify the hand or appearance of fabrics, such as softness, luster and sheerness. A second type of finish is designed to provide some performance characteristic, such as resistance to abrasion, shrinkage, mildew, rain, fire, or wrinkling. Basic chemical modifications of cotton are briefly mentioned. 29 references.

Milling: weaving firmness and finished firmness.

S. Brierley. *Textile Mfr. 81:* 436-437 (August, 1955).

In order to examine weaving firmness and finished firmness more fully, a series of cloths made with 20 skns. woolen yarn and 2/2 twill of the same weight per yard finished are studied.

Mothproofing woolens.

H. Laudani (Stored-Product Insects Laboratory). *Soap Chem. Specialties 31:* 149-153 (August, 1955).

Evaluation of Strobane and Perthane as protectants for woolens against fabric insect damage and as toxicants for controlling black carpet beetles. 4 references.

Improvement of textile fibers by resin treatment. Part 1. Stability of urea-formaldehyde resin solution in the presence of various catalysts.

H. Tonami. *J. Soc. Textile Cellulose Ind. Japan 11, No. 3:* 135-140 (1955); *in Japanese with English summary.* Through *BCIRA 35:* 532 (1955).

The technology of shrink- and crease-proofing.

F. Weber. *Textil-Rundschau 10, No. 5:* 226-235 (1955); *in German.* Through *BCIRA 35:* 532 (1955).

In this review of patented shrink- and crease-proofing processes, reference is made especially to those claiming a treatment which does not impair the feel, abrasion resistance, affinity for dyes, etc., of the treated cloth. Brief reference is also made to methods for testing the crease-resistance of fabrics. A table is given listing in chronological order the patent numbers (Austrian, German, British, U. S. A., and others), the firms holding the patents, the type of precondensates, the degree of dispersity, the catalysts used, the setting temperature, and relevant remarks. 33 references.

Practical experiences regarding chemical and mechanical shrinking.

R. Steidl. *SVF Fachorgan Textilveredlung 10, No. 3:* 118-124 (1955); *in German.* Through *BCIRA 35:* 532 (1955).

Practical tests were carried out on the weft and warp shrinkage of a mechanically and chemically shrunk twill fabric. The values obtained show that chemical shrinking is at least equivalent to the best mechanical shrinking process. The final result is not affected by the manner of pre-drying, provided that mechanical shrinking has been carried out correctly. Even the lowest concentrations of resin give better results during repeated washing (boiling) than the best mechanical processes. The shrinkage value of chemically-shrunk fabrics improves on storage, the fabrics showing no decrease in tensile strength and abrasion resistance. The experimental results are summarized in five diagrams and two tables.

Silicones—the road to fashion finishing.

N. C. Shane. *Am. Textile Reptr. 69:* 41-43, 47, 79 (August 18, 1955).

The advantages and uses of silicone finishes are reviewed.

DYEING AND PRINTING D 2

A handbook of textile dyeing and printing.

A. J. Hall. London: National Trade Press, 1955. 202 p.

Dyeing, finishing, and heat-treating Arnel triacetate.

F. Fortess (Celanese Corp.). *Am. Dyestuff Reptr. 44:* P524-P537 (August 1, 1955).

Although the dyeing rate of Arnel cellulose triacetate with disperse (acetate) dyes is somewhat slower than that of the standard acetate, it can be dyed at temperatures close to the boil without fear of saponification or delustering. This means that dyeings in closed jigs and winches can be attained in normal dyeing times in light and medium shades. For very heavy shades, such as navy blues and blacks, dyeing accelerants will permit achievement of shades in commercial dyeing times and more economical use of dyes. When fabrics dyed with selected disperse dyes have been given a heat treatment, good fastness to AATCC Wash Test No. 3 (160°F) is obtained. The lightfastness of these disperse dyes on Arnel is similar to that on acetate, while the gas-fading resistance of heat-treated Arnel is, in general, slightly better. Work in progress indicates that blends of Arnel with cotton, wool, rayon, and Dacron can be dyed satisfactorily. Good blacks can be attained on straight Arnel with developed azo dyes. A wide variety of nondurable as well as a number of durable finishes have been successfully applied on Arnel and Arnel-blended fabrics. 3 references.

Principles of dyeing Dacron polyester fibers and their use in practice.

H. P. Landerl and W. R. Remington. *Z. ges. Textil-Ind. 57, No. 11:* 598-602 (1955); *in German.* Through *BCIRA 35:* 528 (1955).

Since it has become known that the mechanism involved in dyeing Dacron fibers consists in dissolution of the dye in the fiber and obeys Henry's distribution equilibrium, the difficulties previously encountered have been largely eliminated. The diffusion of the dye in the fiber can be accelerated by (1) increasing the temperature to 120°C and (2) using carriers (e.g. benzoic acid, diphenyl, phenylphenol, etc.) which increase the dyeing rate without the necessity of increasing the dyeing temperature above 100°C. Dyeing of Dacron without carriers and of Dacron-wool and Dacron-cellulose fabrics is discussed.

The dyeing of polyamide fibers.

H. J. Palmer. *Z. ges. Textil-Ind. 57, No. 11:* 603-615 (1955); *in German.* Through *BCIRA 35:* 528 (1955).

In this review, the author discusses the polyamide types, laboratory experiments carried out to study the processes occurring during dyeing of polyamide fibers with disperse, anionic, vat and basic dyes, and dyeing in practice (pre-treatment and dyeing of fabrics and yarns from 100 per cent polyamide with disperse, anionic, vat and azo dyes; polyamides in blends with cellulose acetate, cellulose fibers, and wool). 54 references.

Dyeing of fiber mixtures containing Orlon 42.

H. Stern. *SVF Fachorgan Textilveredlung 10, No. 4:* 168-172 (1955); *in German.* Summary in *BCIRA 35:* 530 (1955).

Dyeing spun viscose with coprantine and chlorantine fast dyes at 130° C. (265° F.): high-temperature pressure dyeing method.

Ciba Rev. No. 110: 3997-3999 (June, 1955).

Dyeing wool by the high temperature pressure method.

R. Casty. *Ciba Rev. No. 110:* 4000-4001 (June, 1955).

Notes on package dyeing.

E. Caswell (Ciba Co., Inc.). *Am. Dyestuff Reptr. 44:* P561-P565 (August 15, 1955).

The author offers comments and advice on package-dyeing yarns of various fibers. In case of cotton he has found that a boil-out with acetic acid is effective, and emphasizes the usefulness of a semibleach with perborate and dyeing with peroxide-stable directs. Pigment filter tests for vat dyes and the releveling of vats on packages are discussed. The importance of winding packages and of the maintenance of adequate flow are emphasized. The preparation and dyeing of elastic nylon yarn are explained and experiments showing maintenance of stretch are cited. Suggestions are given for improving the fastness and levelness of nylon-yarn dyeings in general.

MECHANICAL PROCESSES D 3

Proper napping is not easy.

H. S. Bolger. *Knitter 19:* 38-41 (August, 1955).

Types of napping machines, the napping operation, installation of new clothing, and some kinks on napping are described.

The napping machine.

B. Hoffman. *Z. ges. Textil-Ind. 57, No. 9:* 518-519; *No. 10:* 557-560 (1955); *in German.* Through *BCIRA 35:* 534 (1955).

An attempt is made to describe the mechanism of the Gessner raising machine and to elucidate its essential problem, namely, the effective raising velocity of the pile- and counter-pile rollers. Tables are given to show the effective raising velocity for different cloth velocities (in m/min).

DRYING D 4

Drying and heat treating of textiles containing cellulose fibers.

H. Rath. *Fibres 16:* 272-275 (August, 1955).

In a brief survey this report describes the latest methods in drying and heat treating textiles containing cellulose fibers, as well as the machinery and equipment developed for these processes.

TESTING AND MEASUREMENT E

How much testing should a mill do?

N. L. Enrick (Institute of Textile Technology). *Textile Ind. 119:* 150-152 (September, 1955).

See *TTD 12:* 258 (June, 1955).

FIBERS E 1

A chemical method for the determination of protein rayons in mixtures with wool.

E. Druce (British Cotton Ind. Research Assoc.). *J. Textile Inst. 46:* T512-T520 (July, 1955).

A new method is described for the determination of the protein rayons Ardil, Fibrolane BX, and Vicara, in the presence of wool. In this method, the wool is first modified by oxidation with cold 3 per cent aqueous peracetic acid, and then dissolved in hot 0.1 N sodium hydroxide solution. The residue or protein rayon is determined by weighing. The protein rayons dissolve to a small extent in these reagents and suitable factors for the correction of results have been determined from solubility experiments with the separate protein rayon fibers. It is shown that the method gives good results with laboratory-prepared mixtures and industrially spun blends of protein rayons and wool. 12 references.

Lubricating power of oils on jute.

M. Chakrabarti and A. N. Saha. *Textile Mfr. 81:* 434-435 (August, 1955).

A description of a simple instrument constructed to measure the frictional forces between surfaces made out of a combination of fibers, and discussion of the experimental results. 3 references.

The orientation of fibers in an electric field.

J. O. Isard. *British J. Appl. Phys. 6, No. 5:* 176-179 (1955). Through *BCIRA 35:* 536 (1955).

Fibers dispersed in a liquid have been observed to turn into the direction of an applied electric field. The effect is attributed to a difference of conductivity between fiber and liquid or, when

both conductivities are very low, to a difference of dielectric constant. It is suggested that the effect might be used in the microscopical examination of textile fibers.

Study of the Uster apparatus for measuring the length of textile fibers.

C. Lutz and G. Cuvelier. *Bull. Inst. Textile* France No. 51: 23-44 (February, 1955); *in French.* Through *BCIRA 35:* 497 (1955).

The apparatus is briefly described and the method is compared with the classical methods of Baer or Zweigle. Since all the operations are mechanized, the experimental errors are almost entirely due to sampling errors. The diagram obtained gives the percentage of useful fibers, determines the variation coefficient of fiber length and estimates the combing yield for long cottons. In general, the Uster diagrams are more regular than the Zweigle diagrams.

YARNS E 2

Analyzing the irregularity of yarns, rovings and slivers by means of the wave length spectrum.

E. Felix (Zellweger Ltd., Uster, Switzerland). *Textile Mfr. 81:* 415-419, 421 (August, 1955).

The appearance of the finished fabric (knitted or woven goods) is not always in direct relationship to the irregularity. This is proved by setting up the cross-section analysis as a wave length spectrum and such an analysis permits reliable forecasts to be made as to the appearance of the finished fabrics. Spectrograms from slivers, rovings, and yarns offer the possibilities of closely controlling preparation machinery, recognizing the characteristic of additional irregularity and allowing the optimum setting of every machine.

Control of yarn production by means of a new regularity tester.

H. Bechlenberg. *Melliand Textilber. 36, No. 5:* 506-507 (1955); *in German.* Through *BCIRA 35:* 539 (1955).

The apparatus described consists of a scanning head which converts the cross-section variations in the yarn tested into directly proportional small electric-current fluctuations. These are increased by means of an adjustable amplifier and recorded continuously by a highly-sensitive micro-ammeter connected with the amplifier. Owing to the relatively high yarn velocity on a spinning machine, only the mean deviations are recorded. The use of the apparatus for direct control measurements on spinning machines is demonstrated and its standardization described.

An evaluation and comparison of evenness testers.

W. T. Waters (Institute of Textile Technology). *Textile Research J. 25:* 686-700 (August, 1955).

A series of experiments were undertaken to systematically evaluate and compare results of the following evenness testers: ITT-Brush Uniformity Analyzer—graph recorder and Automatic Evaluator; Uster Evenness Tester, Model A—graph recorder, Linear Integrator, and Quadratic Integrator; Fielden-Walker Evenness Tester—graph recorder and Deviation Integrator; Pacific Evenness Tester—graph recorder only; Saco-Lowell Graphic Sliver Tester—graph recorder only. 7 references.

Some factors affecting the change in capacity of a parallel-plate condenser due to the insertion of a yarn.

C. Mack (British Cotton Ind. Research Assoc.). *J. Textile Inst. 46:* T500-T511 (July, 1955).

A formula for the change in capacity due to the insertion of a yarn in a parallel-plate condenser, in fairly general circumstances, is given in this paper. The effects of various factors, such as yarn density, twist, dielectric constant, and geometrical configuration, are discussed at length. 12 references.

Testing the regularity of man-made fibers.

W. Burkhart. *Reyon, Zellwolle u. Chemiefasern No. 4:* 238-241 (April, 1955); *No. 5:* 331-336 (May, 1955); *in German.* Through *BCIRA 35:* 538 (1955).

The Uster regularity tester used in cotton and worsted spinning has been modified for use on man-made fibers and is marketed as model C. The apparatus and testing method are described and directions are given regarding the measures to be taken with various materials in order to obtain reliable results. Evaluation of the results (evaluation of the diagrams, the value given by the integrator for mean irregularity, and wavelength spectrum) are discussed.

Stress-strain relationships in yarns subjected to rapid impact loading. Part 3. Effect of wave propagation.

J. C. Smith, F. L. McCrackin and H. F. Schiefer (National Bureau of Standards). *Textile Research J. 25:* 701-708 (August, 1955).

The tensile behavior of a Hookean material elongated by rapid impact at one end has been calculated, using a theory in which wave propagation is considered. As a result of these calcula-

tions, limits have been established on the applicability of a simpler theory in which wave propagation was neglected. 2 references.

FABRICS E 3

The flammability of fabrics.

D. I. Lawson, C. T. Webster and M. J. Gregsten. *J. Textile Inst. 46:* T453-T463 (July, 1955).

Two methods of assessing the flammability of fabrics are described. In one the rate of burning of fabrics in the vertical direction is measured. In the other, in which a more robust instrument suitable for general use is employed, a strip of the material is clamped around a semi-circular frame and the distance or time of spread of flame around the semi-circle is observed. 4 references.

Measurement of the crease angle on fabrics and factors affecting it.

K. Quehl and W. Siegel. *Melliand Textilber. 36, No. 5:* 491-494 (1955); *in German.* Summary in *BCIRA 35:* 540 (1955).

The Pulfrich photometer, an apparatus for measuring luster.

W. Ellinger. *Rayonne et Fibres Synthet. 11, No. 4:* 589-591 (1955); *in French.* Through *BCIRA 35:* 504 (1955).

The equipment (Pulfrich photometer, a plate placed on the photometer stage for the objects to be tested, and a lamp placed at an angle of 45° to the axis of the apparatus) and the method for measuring the luster of rayon fabrics and fabrics from other synthetic fibers are described.

Measurement of the extent of delustering of filament fabrics. Part 1.

R. Jeffries (British Rayon Research Association). *J. Textile Inst. 46:* T391-T399 (June, 1955).

A laboratory instrument for the measurement of deluster in woven filament fabrics is described. The method of measurement is very sensitive and detects differences in luster not easily visible by eye. It is convenient for use in mills for purposes of control. 8 references.

The tendering of cellulose by light, especially in presence of titanium dioxide.

E. Treiber. *Svensk Papperstidn. 58, No. 6:* 185-195 (1955); *in German.* Through *BCIRA 35:* 418 (1955).

Photolysis of cellulose and its photo-oxidation in the presence and absence of titanium dioxide is discussed with reference to the literature and unpublished work on the effects of hypochlorite and hydrogen peroxide, organic peroxides, trace elements, impurities, pH value, dyes, finishing agents and detergents. Methods and apparatus for light-tendering tests (sunlight and artificial light) are described, and experiments for reducing the light tendering are reported (with special reference to curtain material). The review also includes studies on the effect of TiO_2-treatment during spinning (chemical behavior of TiO_2, the nature of photo-oxidation, factors affecting the activity and means for reducing it, and testing of pigments). 64 references.

Service fading of disperse dyestuffs by chemical agents other than the oxides of nitrogen.

V. S. Salvin and R. A. Walker (Celanese Corp. of America). *Textile Research J. 25:* 571-585 (July, 1955).

An extensive trial of acetate drapery fabrics dyed with new "gas-fast" blues has shown that active agents in the atmosphere, in addition to the oxides of nitrogen, can cause fading in service. This fading is oxidative in nature. It has been reproduced by an accelerated laboratory test in which fabrics have been exposed to concentrations of ozone somewhat higher than those ordinarily found in the atmosphere. This type of fading has been designated as "O-fading." 8 references.

Testing washing shrinkage.

Wool Sci. Rev. No. 14: 19-25 (April, 1955).

This article deals with the problems which arise in measuring that form of shrinkage in wool fabrics which is brought about by treatments like washing and laundering. It is primarily concerned with knitted fabrics. 6 references.

Investigation of some arbitrary aspects of Bundesmann shower testing.

J. Lord (Shirley Institute). *J. Textile Inst. 46:* S83-S100 (June, 1955).

Various factors which can influence the results of Bundesmann shower tests have been investigated; they include the method used to remove surplus water from specimens exposed to the shower, the temperature, pH and rate of flow of water, and the size of the bezel used to clamp the specimens to the test cups. Some results illustrating the influence of the rate of flow of water and of the physical state of the jets on the drop weight are presented. The effects of the roughness of the wiper arms, which subject the specimen to a rubbing action, and of variations in the tensions of the springs used in the cups have also been considered. It is desirable that stricter control of test conditions than that required by Tentative Textile Standard No. 8, 1947, should be exercised; some recommendations are made for obtaining a suitable degree of control. 9 references.

Method of test for water-repellency of fabrics permeable to air using a Bundesmann-type apparatus.

J. Textile Inst. 46: S51-S56 (June, 1955).

Tentative textile standard no. 8, 1955. Revised.

Method of testing water-repellency of cotton fabrics permeable to air using a Bundesmann-type apparatus.

J. Lord (Shirley Institute). *J. Textile Inst. 46:* S57-S82 (June, 1955).

Detailed report of a third inter-laboratory Bundesmann trial.

OTHER E 4

The effect of oxidizable oil-containing preparations on rayon fibers and fabrics. Part 2. Chemical methods of analysis and their use.

K. Taufel, R. Vogel and A. Wicklein. *Faserforsch. u. Textiltech. 6, No. 3:* 114-122 (1955); *in German.* Summary in *BCIRA 35:* 460 (1955).

Reliability and applicability of viscosity measurements on native and regenerated celluloses in determining the degree of polymerization and the damaging factor.

H. W. Krsek. *Textil- u. Faserstofftech. 5, No. 3:* 151-154 (1955); *in German.* Through *BCIRA 35:* 415 (1955).

The author reviews the three main possibilities of determining the molecular weight of high-molecular substances, (1) methods for determining the number of molecules dissolved in a different medium (end-group determination, osmometric method and cryoscopic measurement), (2) methods for determining the mean weight of the dissolved particles (physical methods in which the calculation is based on sedimentation and viscosity), and (3) the method of sedimentation in equilibrium for determining the magnitude of the weight mean. Error sources of these methods are pointed out, and the determination of the degree of polymerization and calculation of the damaging factor for cotton, bast fibers and regenerated fibers are discussed. Brief reference is made to the interferences caused by bleaching, dyeing, and aftertreatment of the fibers.

Some not immediately noticeable fiber damages and their practical consequences.

J. Jensen. *Tidsskr. Textiltek. 13, No. 3:* 41-48 (1955); *in Danish.* Through *BCIRA 35:* 415 (1955).

The effect of chemical degradation (especially by bleaching) of textiles on their resistance to washing and the degradation of cellulose are briefly discussed and reference is made to the possibility of studying the degree of cellulose degradation by viscosity measurements. The BCIRA's standard viscometer and micro-viscometer are described and the relation between fluidity and degree of polymerization is discussed, pointing out that in this respect the accurate knowledge of the molecular size is of no practical importance. Some examples for the practical use of viscosity measurements in the textile industry and in industrial laundries are given.

Identification of insect damage on wool and related animal fibers.

D. J. Ott (Geigy Chemical Corp.). *Am. Dyestuff Reptr. 44:* 515-520 (August 1, 1955).

Methods are described for identifying various types of damage to woolen fabrics. The method most commonly used by the Geigy laboratory in connection with the mothproofing work on Mitin involves a microscopic examination of the fabric for insect refuse and mandible imprints. Photomicrographs of woolen fibers damaged by three common species of keratinous feeders (webbing clothes moth, black carpet beetle, and furniture carpet beetle) are included as well as photomicrographs of burnt fibers. Incidental damage to fabrics by nonkeratinivorous insects is also discussed and a partial list of these species is included. 30 references.

Instrument for recording production progress.

Wool Rev. 27: 43 (March, 1955).

The Centralograph is a recording instrument which registers on a graph the production performances of up to twenty connected machines. The reasons for stoppages on the machines are reported manually by means of a dial provided at each machine and are recorded on the centralogram in the form of a numeral at the side of the line registration.

INDUSTRIAL ENGINEERING F

Instruments—cornerstone of automation.

W. H. Ridley (Foxboro Co.) *Am. Textile Reptr. 69:* 35, 75-78 (August 18, 1955).

Some applications of electronic instruments to automation and control.

Systematizing waste control.

M. Chagro. *Textile Ind. 119:* 155,157,165 (September, 1955).

A system of cotton waste control for a mill is described. A waste percentage control chart is given, showing at a glance the percentages of every unit and indicating any high or low fluctuation from standard.

MACHINERY AND MAINTENANCE F 1

Trouble shooting on motors and control equipment.

H. S. Colbath (Bibb Mfg. Co.). *Textile Bull. 81:* 78-80 (August, 1955).

SCIENCES G

CHEMISTRY G 1

New textile detergents.

Textile Merc. 133: 238-241 (August 5, 1955).

Properties and uses of alkyl-aryl sulfonates.

Synthetic detergents compared with soap.

Textile Mfr. 81: 430-433 (August, 1955).

The value of detergents compared with soap in textile processing is reviewed. 9 references.

Techniques for evaluating low-foaming detergents.

M. N. Fineman, H. L. Greenwald and C. G. Gebelein (Rohm and Haas Co.). *Soap Chem. Specialties 31:* 43-46, 183 (August, 1955).

This paper describes techniques which have been used in the development of new low-foaming surfactants, and low-foaming detergent formulations, for use in applications where foam is undesirable. These techniques include: a novel laboratory apparatus which simulates the action of a mechanical dishwasher and permits evaluation of foam under controlled conditions of temperature and spray pressure; adaption of a standard home dishwashing machine as a test instrument; evaluation of detersive efficiency by means of a dynamic hard surface detergency test.

21st annual review of the literature on fats, oils, and detergents.

M. M. Piskur. *J. Am. Oil Chemists Soc. 32:* 255-271 (May, 1955); 319-341 (June, 1955).

Visual observations of the behavior of soil particles in dilute aqueous soap systems.

C. W. Hock (Hercules Powder Co.). *Textile Research J. 25:* 682-685 (August, 1955).

The nature of one type of detergent action was demonstrated visually upon the addition of graphite to soap solutions of laundry strength. The graphite became coated with elongated soap particles and superficially bore a resemblance to pieces of candy covered with shredded coconut. The soap particles, which may bear some relation to micelles, measured 100 to 150 A wide and from 500 to 1500 A long. This exploratory study involved an electron microscopical examination of specimens from which the water had been removed while in the frozen state. 14 references.

Control of appearance changes due to soiling: the mechanism, measurement, and reduction of soiling changes in carpet during use.

P. A. Florio and E. P. Mersereau (Alexander Smith, Inc.). *Textile Research J. 25:* 641-649 (July, 1955).

Practical materials and methods are presented for the maintenance of color and texture by the reduction in the rate of carpet soiling. By using a soil-retarding finishing treatment consisting of a combination of metal oxides having a size distribution of between 0.1 and 4.0μ it is possible to maintain the original appearance of the carpet for periods 3 to 4 times longer than usual. Used in concentrations amounting to ¾ to 1% of dry solids based on the weight of the pile showing, it has been found to be satisfactory for all carpet fibers, including wool, rayon, viscose, acetate, nylon, jute, and cotton. The mechanism by which the treatment operates is believed to be mainly the saturation by these particles of the sites normally occupied by soil. 6 references.

Synthetic detergents and emulsifiers up to date. Parts 1 and 2.

J. W. McCutcheon. *Soap Chem. Specialties 31:* 50-61 (July, 1955); 48-61 (August, 1955).

This revised table of American trade name products in the field of detergents, emulsifiers, and other surface active agents contains trade name, manufacturer, class and formula, main uses, form, per cent, concentration, type, and remarks.

Better detergency evaluation.

E. H. Armbruster and G. M. Ridenour (University of Michigan). *Soap Chem. Specialties 31:* 47-50 (July, 1955).

Two types of easily and inexpensively prepared materials are described which are suitable for use as soil tracer indices. One, a radioactive chromium phosphate sol, is highly stable, insoluble in alkalies, acids, and organic solvents. The

other, a bacterial suspension tagged with radioactive phosphorus is also adaptable to use as a soil tracer. The stability of each with respect to bonding of radioactive phosphorus to the soil, and the freedom of each from free phosphorus is demonstrated by electrophoresis measurements. 4 references.

The chemical constitution of some silk fibroins and its bearing on their physical properties.

F. Lucas, J. T. B. Shaw, and S. G. Smith (Shirley Institute). *J. Textile Inst. 46:* T440-T452 (June, 1955).

The chemical composition of a number of silk fibers of different origins, and of the Byssus fiber of *Pinna nobilis,* has been determined by chromatographic analysis with the result that they may be classified into three main groups typified by the silk obtained from the Anaphe moth *(Anaphe* sp.), from the Silk moth *(Bombyx* sp.), and from the Tussah moth *(Antheraea* sp.). Some physical properties of these fibers have been investigated, and correlated where possible with the amino-acid analyses. 11 references.

The oxidation of the aldehyde groups in periodate oxycelluloses by chlorous acid.

G. F. Davidson and T. P. Nevell (British Cotton Industry Research Association). *J. Textile Inst. 46:* T407-T423 (June, 1955).

This work forms part of the program of fundamental research carried out at the Shirley Institute. The effects of pH, temperature, and chlorite concentration on the oxidation of the aldehyde groups in a series of sixteen periodate oxycelluloses by acidified chlorite solutions have been investigated. From the results it is concluded that a maximum conversion of aldehyde to carboxyl groups is obtained by treatment of the oxycelluloses at 20°C with chlorite solution acidified to pH 3; the chlorite concentration and the length of the treatment that are required depend upon the extent of the periodate oxidation Evidence is presented which suggests that one of the two aldehyde groups in a chain-unit of a periodate oxycellulose is preferentially oxidized by chlorous acid, and that this group reduces more copper in the copper number determination, and contributes more to the alkaline sensitivity of the oxidized chain-molecule, than the other. 19 references.

The reduction of the aldehyde groups in periodate oxycelluloses by sodium borohydride.

F. S. H. Head (British Cotton Industry Research Association). *J. Textile Inst. 46:* T400-T406 (June, 1955).

This work forms part of the program of fundamental research carried out at the Shirley Institute. It is shown that treatment of periodic oxycelluloses with aqueous sodium borohydride greatly diminishes their reducing power (copper number) and their fluidity in cuprammonium. The effects of varying the pH, the temperature, and the reagent concentration in the borohydride treatment have been investigated, and optimum conditions for the reduction are suggested. 15 references.

Wet processing problems diminish with use of proper chelating agent.

Am. Textile Reptr. 69: 19,21,30-31 (August 18, 1955).

The effectiveness of various compounds in solving trace metal problems is investigated for the benefit of dyers and finishers.

Applications of thermodynamics to the stretching of cellulose fibers.

W. E. Roseveare and L. Poore (E. I. du Pont de Nemours and Co.). *Textile Research J. 25:* 709-714 (August, 1955).

Mechanical deformations of cellulose are recognized to take place primarily in the amorphous regions whose nature has not been well defined. Since these regions do not have a regular type of order, attention has been turned to entropy of stretching as a statistical measure of the changes in structure on stretching. Data are presented giving the retractive force, coefficient of thermal expansion and modulus under a wide variety of conditions. 8 references.

PHYSICS G 2

Introduction to electronics.

Textile Mfr. 81: 422-425 (August, 1955).

Some basic principles of electronics are explained to help in understanding electronic devices for measurement and control.

Electrostatic charges on fabrics.

H. T. McLean (General Electric Co.). *Am. Dyestuff Reptr. 44:* P485-P489 (July 18, 1955).

This article is aimed at clarifying and expressing in practical terms the electrostatic phenomena observed on synthetic fabrics. The mechanisms by which fabrics become charged, the apparent location of the charges on the fabric and the common methods of charge dissipation are explained. Charge-measurement methods and the inherent errors in resistance and directional electrometer methods are discussed, and an experi-

mental instrument based on contact with the fabric is described.

Antistatic specialties. Part 2.

R. D. Fine (Atlas Powder Company). *Soap Chem. Specialties 31:* 159-163,197 (July, 1955).

Antistatic agents for home laundering uses and for floor waxes are described. Test methods for antistatic agents are also discussed. 4 references.

BIOLOGY G 3

A comparison of resistance to fungal attack of various fibers.

R. E. Spielrein and C. J. Brady. *Australian J. Appl. Sci. 5, No. 4:* 418-427 (1954). Through *BCIRA 35:* 414 (1955).

This paper reports the results of soil burial and fungus inoculation tests on yarns of retted and decorticated flax, retted and decorticated kenaf, retted jute, and retted *Urena lobata* L.

MISCELLANY H

Operations research: the science of generalized strategies and tactics.

G. D. Camp (Melpar, Inc.). *Textile Research J. 25:* 629-634 (July, 1955).

Characteristics of operations research are described under the headings: subject matter, relation to the executive, logical basis, methods and techniques, and results.

Textile education, graduate and undergraduate.

B. W. Hayward. *Textile Research J. 25:* 603-608 (July, 1955).

Paper presented at annual meeting of Textile Research Institute, March, 1955.

Inter-relationship of the chemical and textile industries.

H. Jackson. *J. Textile Inst. 46:* P355-P368 (June, 1955).

This Mather lecture traces the relationship between the chemical and textile industries from the latter half of the eighteenth century to the present. 8 references.

The consumer is your customer.

J. Labarthe (Mellon Institute). *Textile Ind. 119:* 140-145 (September, 1955).

Consumer complaints are analyzed. Emphasis is given to the need for standards defining end-use performance levels known to give good consumer service and the need for goods labeled with all pertinent information.

Textile Recorder annual book of the year, 1955.

Manchester, Harlequin Press, 1955. 210 p.

A review of the past year in the British textile industry, including technology, machinery, research, economics, and raw materials.

Manual of the textile industry of Canada, 1955.

Montreal, Canadian Textile Journal Pub. Co., 1955. 220 p.

A review of the past year in the Canadian textile industry, including technology, economics, machinery, industry, statistics, a buyer's guide, and mill directory.

Brussels Exhibition.

S. I. Rudo (Werner Textile Consultants). *Textile Age 19:* 40-45 (August, 1955).

Personal impressions of the Brussels Exhibition.

Textile exhibition: Brussels 1955.

Textile Recorder 73: 87-195 (July, 1955).

A description of the machinery on exhibit at the Brussels textile exhibition: British, p. 90-128; French, p. 151-154; German, p. 161-173; Dutch, p. 178-179; Swiss, p. 181-188; United States, p. 193-195.

Textile machinery at the Brussels International Exhibition.

Man-Made Textiles 32: 57-61 (August, 1955).

Report on the Brussels Exhibition.

Textile Recorder 73: 60-71 (August, 1955).

Details of some of the new machinery which was shown at the Second International Textile Exhibition in Brussels in July.

Second International Textile Exhibition at Brussels.

Fibres 16: 280-285 (August, 1955).

Machinery and accessories, chemicals and dyestuffs, and textiles and made-up goods are briefly described.

International Congress of Scientific Research Applied to the Textile Industry. Part 1.

Fibres 16: 267-271 (August, 1955).

Brief accounts of the papers on man-made fibers are given.

PATENT CHECKLIST

U. S. Patents may be obtained from the U. S. Patent Office, Washington 25, D. C., for 25 cents per copy. Photostatic copies of foreign patents are available. Charges for these photostats are based on the number of pages in the patent.

Col. 455

FIBERS A

NATURAL FIBERS A 1

Beta-propiolactone modification of wool.
W. G. Rose and H. P. Lundgren. USP 2 717 194, September 6, 1955.

YARN PRODUCTION B

Stop motion feeler device that makes only intermittent contact.
E. E. Feather (to Prince-Smith and Stells Ltd). BP 724 689, February 23, 1955. Through *BCIRA 35:* 484 (1955).

Means for converting card web continuously into spun yarn on bobbins.
Officine Meccaniche Ferroviarie Pistoiesi Gia San Giorgio (Italy). BP 724 777, February 23, 1955. Through *BCIRA 35:* 484 (1955).

OPENING, PICKING, FIBER PREPARATION B 1

Magnetic comb for removing metallic waste in a waste-opening machine.
A. Earnshaw. BP 722 798, February 2, 1955. Through *BCIRA 35:* 401 (1955).

Methods of and machines for blending textile fibers.
E. C. Gwaltney, W. Shaw and E. B. MacLean (to Saco-Lowell Shops). USP 2 712 675, July 12, 1955.

CARDING AND COMBING B 2

Card clothing treatment process.
G. W. Vaughan, Jr. and C. R. Sacchini (to The Marquette Metal Products Co.). USP 2 712 674, July 12, 1955.

Col. 456

Intermediate feed device for carding machines.
W. F. Bokum (to Proctor and Schwartz, Inc.). USP 2 713 182, July 19, 1955.

DRAWING AND ROVING B 3

Condensing device for use in drafting.
Estirajes Balmes, Soc. Anon. BP 722 954, February 2, 1955. Through *BCIRA 35:* 401 (1955).

Saddle weighting motion.
F. Walsh (to T.M.M. Research Ltd). BP 724 285, February 16, 1955. Through *BCIRA 35:* 442 (1955.)

Top rolls for spinning and roving frames.
L. M. Cotchett and R. K. Butler (to Textile Engineering Corp.). BP 724 483, February 23, 1955. Through *BCIRA 35:* 485 (1955).

Two-zone drafting system in which pin or porcupine rollers are mounted between the feed and drafting roller pairs of each zone.
P. T. Bodell (to Collins and Aikman Corp.). BP 724 536, February 23, 1955. Through *BCIRA 35:* 484 (1955).

End cap covering rear parts of drafting mechanism in which the top roller carrier is pivotable about a bracket secured to the lower portion of the frame.
Vereinigte Kugellagerfabriken AG (Germany). BP 725 447, March 2, 1955. Through *BCIRA 35:* 484 (1955).

Device for producing laps from card slivers on sliver-lap machines.
R. Wildbolz and E. Bachmann (to Joh. Jacob Rieter and Cie.). USP 2 713 701, July 26, 1955.

Modified drawing roll stand.
W. L. Davis. USP 2 714 228, August 2, 1955.

Anti-friction top roll.

R. Rulon-Miller (to Dixon Lubricating Saddle Co.). USP 2 714 229, August 2, 1955.

Drafting system comprising a three-roll unit including laterally spaced and parallel bottom rolls and resiliently surfaced weighted top roll.

B. Bisinger and J. Figi (to M. Earl Heard, Jr.). USP 2 715 754, August 23, 1955.

Means for drafting a fiber strand comprising pairs of rolls spaced apart, one pair being restraining rolls and the other terminal drafting rolls.

W. G. Reynolds. USP 2 716 779, September 6, 1955.

Top roll for drawing mechanisms.

K. P. Swanson (to Textile Engineering Corp.). USP 2 716 780, September 6, 1955.

Improved textile-sliver-controlled circuit maker and breaker.

J. M. Elliott and D. R. Green. USP 2 716 781, September 6, 1955.

SPINNING, WINDING, TWISTING B 4

Bobbin holders for the creel of a spinning frame.

Schiess AG. BP 724 937, February 23, 1955. Through *BCIRA 35:* 485 (1955).

Means for connecting the journal casing of a spindle with the journal bushing and with a roller guiding the spindle so that the wharve runs centrically.

Spindel-, Motoren- und Maschinenfabrik AG (Switzerland). BP 725 245, March 2, 1955. Through *BCIRA 35:* 485 (1955).

Means for overcoming variations in yarn tension due to vibration of the spindle shaft of the parent magnetically-driven double-twist spindle.

Textile and Chemical Research Co. Ltd. BP 725 283, March 2, 1955. Through *BCIRA 35:* 485 (1955).

Drive for two-story textile twisting machines.

Neumunstersche Maschinen- und Apparate-Baugesellschaft GmbH. BP 725 466, March 2, 1955. Through *BCIRA 35:* 485 (1955).

Device for twisting and winding a running strand of yarn.

D. G. Soussloff, C. A. Steele and R. V. Tata (to Universal Winding Co.). USP 2 715 308, August 16, 1955.

Flier for multiple twist twisters.

W. D. Kellogg (to American Viscose Corp.). USP 2 715 811, August 23, 1955.

Doffing and donning apparatus.

J. J. Colvin (to Callaway Mills Co.). USP 2 716 326, August 30, 1955.

Yarn break detector mechanism.

F. Schaum (to Fletcher Works Inc.). USP 2 716 858, September 6, 1955.

Cooling means for an electric motor driven spinning machine.

W. H. Compton, J. M. Duff and J. K. Smith (to Reliance Electric and Engineering Co.). USP 2 716 859, September 6, 1955.

Control mechanism for drives of bobbin winding machines.

W. W. Egee (to Fletcher Works Inc.). USP 2 717 126, September 6, 1955.

Yarn package tube holder for winding machines.

E. J. Heizer (to Specialties Development Corp.). USP 2 717 128, September 6, 1955.

YARNS B 5

Sewing thread for use in sewing machines, comprising destructible yarn and permanent yarn.

W. S. Woodson, Jr. (to Manhattan Shirt Co.). USP 2 714 758, August 9, 1955.

Method of and apparatus for forming staple cordage.

W. W. Drummond and P. J. Frickert (to Owens-Corning Fiberglas Corp.). USP 2 714 797, August 9, 1955.

Crimped, continuous filament yarn.

N. Rosenstein and A. J. Rosenstein. USP 2 715 309, August 16, 1955.

Water-soluble yarn.

T. R. Latour (to E. I. du Pont de Nemours and Co.). USP 2 716 049, August 23, 1955.

FABRIC PRODUCTION C

Thread-tensioning apparatus.

A. A. Atkins (to Courtaulds Ltd). USP 2 715 505, August 16, 1955.

Bill cutter and yarn holder for knotter.
J. O. Thorndike (to Abington Textile Machinery Works). USP 2 716 035, August 23, 1955.

Portable knot tying device.
L. F. Fenell. USP 2 716 036, August 23, 1955.

WARPING, SLASHING, YARN PREPARATION C 1

Oscillating thread guide for winding machines.
W. Halstenbach, C. G. Rosenkranz and A. Plutte (Germany). BP 724 690, February 23, 1955. Through *BCIRA 35:* 488 (1955).

Apparatus for feeding cops and bobbins in orderly arrangement to winding machines.
W. Halstenbach, C. G. Rosenkranz and A. Plutte (Germany). BP 724 783, February 23, 1955. Through *BCIRA 35:* 488 (1955).

Yarn clearing device.
W. Reiners (Germany). BP 725 306, March 2, 1955. Through *BCIRA 35:* 488 (1955).

Automatic bobbin winding machines.
W. Halstenbach, C. G. Rosenkranz and A. Plutte (Germany). BP 725 331, March 2, 1955. Through *BCIRA 35:* 488 (1955).

Means for lifting the winding spindle in tubular cop winding frames.
W. Dietz (Germany). BP 725 606, March 9, 1955. Through *BCIRA 35:* 489 (1955).

Variable-speed driving mechanism for beaming and like textile machines.
Thomas Holt Ltd. BP 725 792, March 9, 1955. Through *BCIRA 35:* 489 (1955).

Process for sizing nylon yarn.
F. J. Brockman and O. C. Wentworth (to Du Pont Co. of Canada Ltd). USP 2 715 590, August 16, 1955.

Process and apparatus for piecing the warp ends of a warp beam to the warp ends of another warp beam.
W. Felton (to David Crabtree and Sons Ltd). USP 2 717 117, September 6, 1955.

WEAVING C 2

Lug straps used in conjunction with picker sticks of looms.
Leder and Co. AG (Switzerland). BP 724 768, February 23, 1955. Through *BCIRA 35:* 490 (1955).

Shuttle race, particularly for a loom of the gripper-shuttle type.
Sulzer Freres Soc. anon. BP 724 914, February 23, 1955. Through *BCIRA 35:* 490 (1955).

Means for aligning warp beams for weaving wide cloths.
Sulzer Freres Soc. anon. (Switzerland). BP 725 746, March 9, 1955. Through *BCIRA 35:* 489 (1955).

New method for carrying shuttle through shed.
J. R. Walton (to Chicopee Mfg. Corp.). USP 2 713 876, July 26, 1955.

Electrical control system and apparatus for loom.
L. Casper (to Electrotex Corp.). USP 2 714 901, August 9, 1955.

Control for loom letoff.
A. Laraia and V. F. Sepavich (to Crompton and Knowles Loom Works). USP 2 715 421, August 16, 1955.

Shuttle picking mechanism.
E. Pfarrwaller (to Sulzer Freres, Switzerland). USP 2 715 422, August 16, 1955.

Adjustable buffers for weaving looms.
J. Picanol (Belgium). USP 2 715 423, August 16, 1955.

Circular looms.
J. Catry and R. N. Low (to Fairwest (U. K.) Ltd). USP 2 715 915, August 23, 1955.

Methods of weaving frieze fabrics.
N. O. G. Nelson. USP 2 715 916, 919, August 23, 1955.

Modified Axminster loom and method.
A. J. Eisler and M. F. Moxley (to James Lees and Sons Co.). USP 2 715 918, August 23, 1955.

Methods of weaving frieze fabrics.
N. O. G. Nelson. USP 2 715 919, August 23, 1955.

Electrically operated stop motion means for looms for weaving tufted pile fabrics.
E. S. Butler and A. Sutcliffe (to Platt Brothers and Co. Ltd). USP 2 715 920, August 23, 1955.

Velvet fabric pile carpet.

H. J. Smiley (to James Lees and Sons Co.). USP 2 715 921, August 23, 1955.

Device for applying tension to yarn in machine having a shuttle with a replaceable bobbin.

C. H. Gingher. USP 2 716 429, August 30, 1955.

Process of weaving a pile carpet.

F. W. E. Hoeselbarth (to C. H. Masland and Sons). USP 2 717 005, September 6, 1955.

Sweepstick for looms and self-aligning bearing.

E. V. Dardani (to Heim Co.). USP 2 717 006, September 6, 1955.

Adjustable reed cap and shuttle guard.

W. M. Battles. USP 2 717 007, September 6, 1955.

Electric stopping mechanism for shifting shuttle box looms.

C. W. Moss. USP 2 717 008, September 6, 1955.

KNITTING C 3

Method of reducing shrinkage in tubular knitted fabric.

F. R. Redman. USP 2 714 756, August 9, 1955.

Method of producing a lady's stretchable and retractable stocking.

W. J. Leath and R. M. Matthews (to Chadolon, Inc.). USP 2 714 757, August 9, 1955.

Knitting machine needle structure.

R. C. Amidon (to Vanity Fair Mills, Inc.). USP 2 714 811, August 9, 1955.

Method of controlling wildness of twisted yarn during delivery to a knitting operation.

W. J. Leath and F. E. Bobo, Jr. USP 2 714 812, August 9, 1955.

Circular knitting machine for producing knit articles having parts of different lengths.

E. D. Kattermann (to Swiss Knitting Co.). USP 2 715 327, August 16, 1955.

An elongated needle comb.

J. Buhrer (to Firma Busch-Werke AG, Switzerland). USP 2 715 328, August 16, 1955.

Knitting machine with a device for guiding and adjusting the needles.

E. Hafner (to Dubied Machinery Co.). USP 2 715 823, August 23, 1955.

Terry loop knitting machine and process.

S. G. Krauss, E. J. Krauss and R. J. Krauss. USP 2 715 824, August 23, 1955.

Apparatus for knitting elastic fabric and method.

J. H. Surratt. USP 2 716 876, September 6, 1955.

Method of knitting a run resisting fabric on a straight bar knitting machine.

K. W. Wickardt (to Hosemaster Machine Co. Ltd). USP 2 716 877, September 6, 1955.

Two part knitting machine needle assembly.

J. L. Morris. USP 2 716 878, September 6, 1955.

FABRICS C 4

Multiple pile staggered W-weaving.

F. W. E. Hoeselbarth (to C. H. Masland and Sons). USP 2 714 902, August 9, 1955.

Knitted fabric which comprises positioning in a thread carrier of a conventional knitting machine at least two plastic threads only one of which is pre-shrunk.

W. Schumann (to Diamond Hosiery Corp.). USP 2 715 762, August 23, 1955.

FINISHING AND CHEMICAL PROCESSING D

CHEMICAL PROCESSES D 1

Watertight and air previous flocked fabric.

P. Hirschberger (to Society Palladium, France). USP 2 715 074, August 9, 1955.

Process of impregnating cellulosic material with thermosetting resin.

O. P. Cohen (to Monsanto Chemical Co.). USP 2 715 078, August 9, 1955.

Apparatus for treating lengths of thread or yarn with liquid agent and for controlling the amount of agent by vibration.

R. P. Rhodes, Jr. (to Coats and Clark Inc.). USP 2 715 079, August 9, 1955.

Electrostatic flocking procedures and apparatus.

S. M. Schwartz and D. Gross (to Velveray Corp.). USP 2 715 585, August 16, 1955.

Process for obtaining a product having a leather-like textured finish.

J. D. Armitage, C. Bliss and D. Ezell (to John L. Armitage and Co., Inc.). USP 2 715 587, August 16, 1955.

Leatherlike products and preparation of same.

B. Graham and J. A. Piccard (to E. I. du Pont de Nemours and Co.). USP 2 715 588, August 16, 1955.

Control of static electricity in wool with polymeric beta-propiolactone.

H. P. Lungren, C. H. Binkley and A. S. Yeiser. USP 2 715 592, August 16, 1955.

Bonding of yarns to rubber.

E. E. Tallis (to Courtaulds Ltd). USP 2 716 083, August 23, 1955.

Bleaching process for cotton of low grade for color.

S. A. Simon and H. C. Ruhf (to Chicopee Manufacturing Corp.). USP 2 717 193, September 6, 1955.

Process of preparing dense bubble-free coatings on a fabric substrate which comprises base coating at least one side of a fabric substrate with a solution of a synthetic rubber.

D. J. Sullivan (to E. I. du Pont de Nemours and Co.). USP 2 717 217, September 6, 1955.

DYEING AND PRINTING D 2

Inhibitors of the gas fading of cellulose acetate and ethylcellulose dyed with anthraquinone dyes.

Badische Anilin- und Soda-Fabrik (Germany). BP 725 353, March 2, 1955. Through *BCIRA 35:* 495 (1955).

Level dyeing of nylon goods containing yarns of different deniers.

N. V. Onderzoekingsinstituut Research (Netherlands). BP 725 390, March 2, 1955. Through *BCIRA 35:* 495 (1955).

Printing machine in which the colors are fed to the interior of partially permeable rollers.

A. J. C. de O. Barros (Portugal). BP 725 885, March 9, 1955. Through *BCIRA 35:* 496 (1955).

Over-dyeing stockings to produce two-color and ombre effects.

S. Bailey, Jr. USP 2 716 585, August 30, 1955.

MECHANICAL PROCESSES D 3

Towel straightening apparatus.

J. T. MacIsaac, Jr., F. W. Brey and R. A. Hill (to Fieldcrest Mills, Inc.). USP 2 716 266, August 30, 1955.

Fabric napping apparatus.

W. N. Hadley (to Parks and Woolson Machine Co.). USP 2 716 797, September 6, 1955.

DRYING D 4

Drying apparatus.

Akt. Svenska Flaktfabriken (Switzerland). BP 725 048, March 2, 1955. Through *BCIRA 35:* 497 (1955).

Combined clip and pin strip for tentering machines.

S. Geisberger (to Lindauer Dornier GmbH). BP 725 229, March 2, 1955. Through *BCIRA 35:* 496 (1955).

Centrifuges for extracting liquids from spools of yarns.

H. Frauchiger (Switzerland). BP 725 351, March 2, 1955. Through *BCIRA 35:* 496 (1955).

Method for drying cordage.

C. F. Faulkner (to Puritan Cordage Mills, Inc.). USP 2 717 215, September 6, 1955.

Heaters for yarn.

W. W. Egee and J. W. Bennett (to Fletcher Works Inc.). USP 2 717 302, September 6, 1955.

TESTING AND MEASUREMENT E

YARNS E 2

Twist direction finder.

W. H. Kreamer (to American Viscose Corp.). USP 2 715 382, August 16, 1955.

FABRICS E 3

Instrument for measuring the elasticity of fabrics.

R. F. Taber. USP 2 714 307, August 2, 1955.

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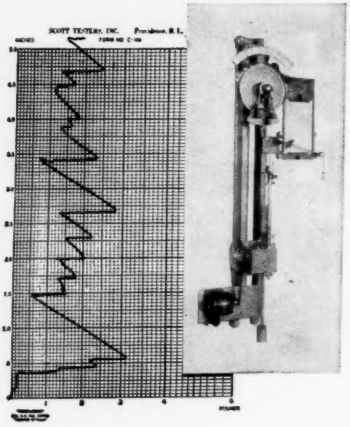

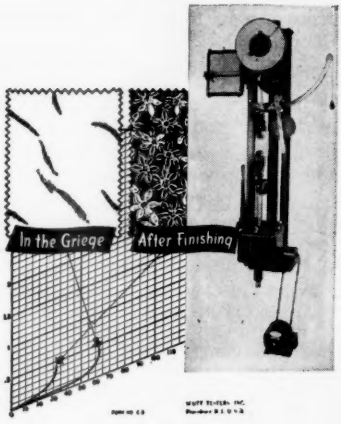

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